Engineer Software

Implemented a catalogue-driven deep-merge

Implemented a catalogue-driven deep-merge for stored JSON preferences, preventing missing-key crashes as the schema evolves.

2025

stored preferences that survive a schema change

Situation. The platform stores JSON preferences — notification settings and the like — as a user's saved values laid over a set of defaults. The original merge did that at a single level. The problem shows up later: add a new key to the defaults, and rows saved before that key existed simply don't have it. Then some client code reads that field, gets undefined, and falls over — for exactly the users who've been around longest.

Task. Evolving the preference schema had to be safe, so that adding a setting could never break the people who signed up before it existed.

Action. The single-level merge was replaced with a deep-merge driven by the defaults as a catalogue. The defaults are treated as the authoritative list of every key that should exist; the user's stored values are merged recursively on top, so anything in the catalogue is guaranteed to come out present, whether or not it was in the saved blob. Add a key to the defaults and it appears in every existing row's effective preferences automatically, nested keys included. It rolled in through a migration so existing data got the benefit straight away rather than waiting to be rewritten.

Result. Preferences can grow without fear. Adding a setting no longer risks an undefined-field crash in the client, and the frontend stopped needing defensive checks scattered around every place it reads a preference. It also gave the rest of the platform a dependable way to extend any stored-JSON blob — the pattern, not just the one fix.

Bring this experience to your project

Use “Implemented a catalogue-driven deep-merge” as a starting point for a similar challenge in your organisation. The services behind this work are available for your project. The part users never see: where the data lives, what the rules are, and how other systems are allowed to talk to it.

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Look behind the result

Read the situation, decisions and result in this example. We can discuss which parts transfer to your constraints and which need another approach. Implemented a catalogue-driven deep-merge — stored preferences that survive a schema change

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Need a schema that evolves without breaking?

Talk through your project with the engineer responsible for delivery. We agree the scope, price basis and handover in writing before work begins.

Role context: Database Engineer. It draws on Backend Engineering, Databases, PostgreSQL, Data Governance and Migrations & Modernization. And while you are here, we are rather good at Backend & API Development, Database Design & Modeling and Data Governance & Quality.

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One piece of **a longer record** — and it is all on this site.

Every entry is written the same way: the situation, the task, what we did and what changed.

See the whole record

Define the improvement you need

Describe the workflow, the existing interfaces and the users who need the change. We can define a testable delivery and a handover that lets your team maintain it.

See what it costs Get in touch →

Need a schema that evolves without breaking?

Ask about the decisions behind “Implemented a catalogue-driven deep-merge”. You will speak with the people who can explain the work and assess your own project.

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